

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2013/0122949 A1

May 16, 2013 (43) **Pub. Date:**

(54) MAPPING A TRANSMISSION STREAM IN A VIRTUAL BASEBAND TO A PHYSICAL **BASEBAND WITH EQUALIZATION**

(75) Inventors: Yong He, Beijing (CN); Kun Tan,

Beijing (CN); Haichen Shen, Beijing (CN); Jiansong Zhang, Beijing (CN); Yongguang Zhang, Beijing (CN)

(73) Assignee: MICROSOFT CORPORATION,

Redmond, WA (US)

(21) Appl. No.: 13/294,093

Filed: Nov. 10, 2011 (22)

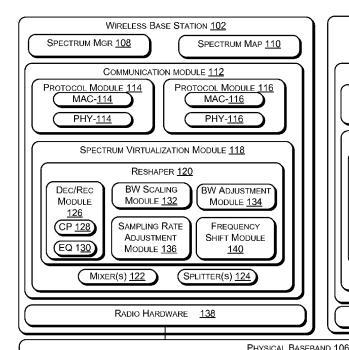
Publication Classification

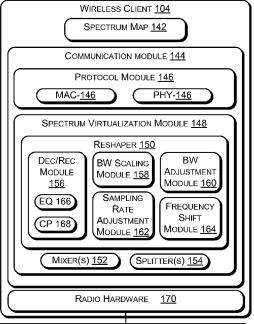
(51) Int. Cl.

H04W 72/04 (2009.01)H04B 7/24 (2006.01)H04B 17/00 (2006.01) (52) U.S. Cl.

(57)ABSTRACT

Embodiments include processes, systems, and devices for reshaping virtual baseband signals for transmission on noncontiguous and variable portions of a physical baseband, such as a white space frequency band. In the transmission path, a spectrum virtualization layer maps a plurality of transmission components associated with a transmission symbol produced by a physical layer protocol to sub-carriers of the allocated physical frequency band. The spectrum virtualization layer then outputs a physical transmission symbol composed of time-domain samples derived from the mapped frequency components and a cyclic prefix. In the receive path, a timedomain symbol received on the physical baseband is reshaped and equalized by the virtual spectrum layer in order to recompose a time-domain samples of a transmission stream in the virtual baseband.





<u>100</u>